

**KEPLER GO CYCLE 3: IMPROVING THE MODELING OF ECLIPSING BINARIES OBSERVED BY
KEPLER**

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We propose to monitor the 57 eclipsing binaries in Cycle 3 that we previously observed during our program Kepler GO Cycle 1 proposal 08-KEPLER08-0014 "A Calibration Study of Variable Stars in the Kepler Field". Our goal is to improve the modeling of eclipsing binaries based on long-cadence Kepler observations. At least 10% (6 of 57 systems) of our sample exhibit strong evidence of starspots and we seek to determine if and how those starspots have moved between Cycles 1 and 3. We seek to achieve period measurements with a precision of better than 0.00001 days (< 0.864 sec). This precision should allow us to determine small but significant period changes in contact binaries in our sample that would be due to mass flows from the secondary to the primary star. Observations spread Cycles 1 and 3 should allow us to determine if any subtle timing effects remain in the Kepler processing pipelining procedures that are due to seasonal effects. The non-contact systems will be used to calibrate our new period timing procedures.